

AMENDMENTS TO THE DRAWINGS:

Applicant(s) submit(s) herewith 1 sheet of new drawings. This sheet replaces sheet 1 of the original drawings and includes FIGURES 1a and 1b.

The amendments to the drawings are as follows:

Figure 1a has been amended to make reference to a controller 11.

REMARKS

Claims 1-8, 10-12, and 14-18 are pending in the application.

Claims 1-3, 8, 10, and 12 are amended.

New claims 14-18 are added.

The Office Action

In the Office Action mailed November 2, 2006, the drawings were objected to under 37 CFR 1.81(c) for omission of the mixing system recited in claims 9 and 13.

The drawings were objected to under 37 CFR 1.83(a) for omission of control means recited in claims 2-9.

Claims 9 and 13 were objected to under 37 CFR 1.75(c) as being in improper dependent form for failure to further limit the subject matter of a previous claim.

Claims 2-3 were objected to as being substantially identical in scope.

Claims 2-12 were rejected under 35 U.S.C. §112, first paragraph, for failure to comply with the enablement requirement.

Claims 2-12 were rejected under 35 U.S.C. §112, first paragraph, for failure to comply with the best mode requirement.

Claims 1-12 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Claim 1 was rejected under 35 U.S.C. §102(e), as being anticipated by U.S. Patent No. 6,880,576 to Karp, et al.

For the reasons outlined below, it is submitted that the claims are now in condition for allowance.

Applicants have canceled claims 9 and 13, which refer to a mixing system. Accordingly, it is respectfully requested that the objection to the drawings based on 37 CFR 1.81(c) be withdrawn. Claims 9 and 13 having been cancelled, it is respectfully requested that the claim objections under 37 CFR 1.75(c) also be withdrawn.

Applicants submit herewith a revised FIGURE 1(a) which includes a controller 11, as supported by original claim 2 of the application. The language of claim 2 has been incorporated into the specification at page 5. An additional reference to controller 11 is made by amendment to the specification at page 9. It is submitted that no new

matter has been added. It is requested that the drawing objection under 37 CFR 1.83(a) now be withdrawn.

Claim 1 has been amended to positively recite a reservoir. Claim 3 has also been amended. Accordingly, it is submitted that claim 2, which is dependent on claim 1, and independent claim 3 are no longer substantially identical in scope. Accordingly, it is respectfully requested that the objections to claims 2 and 3 for informalities now be withdrawn.

Regarding the §112, first paragraph enablement rejection of claim 2, the specification has been amended to incorporate the subject matter of original claim 2. Additionally, the limitation "as required" has been deleted from claim 2. Claim 2 now recited that steps (i) and (ii) are repeated a plurality of times. Support for this amendment is to be found in the specification at page 2, line 19, where it is stated that the injection may be done repeatedly.

In the Office Action, the Examiner contended that the accumulation of powder adjacent the powder inlet would need to be sensed in some way. Although sensing or weighing of accumulated powder would certainly be possible, it is in no way necessary, contrary to the Examiner's suggestion. There is no requirement, as the Examiner suggests, that the method be used with powders having different mechanical and physical properties. Even if the method is used with powders having different particle sizes, it would be well within the skill of one of ordinary skill in the art, based on the instant specification, to conduct tests to determine the mass of powder injected, as illustrated in FIGURE 5, and/or to regulate the gas pressure accordingly.

The Examiner asserts that the specification fails to teach how step (iii) moves the material to the outlet when steps (i) and (ii) merely collect material adjacent the powder inlet. As step (iii) of claim 2 makes clear, subsequent initialization of step (i) causes the powder to be moved by the gas towards the outlet. When steps (i) and (ii) are carried out for the first time, material accumulates adjacent the powder inlet. But, when steps (i) and (ii) are repeated, there is powder already in the channel. As a result, the conditions are different. It is the repetition of steps (i) and (ii) that causes the powder to be moved toward the outlet.

Claims 8 and 12 have been amended to remove reference to the dimension of the inlet. Accordingly, it is respectfully requested that the §112, first paragraph, rejection of these claims be withdrawn.

The Examiner's rejection of claims 2-12 based on an alleged concealment of the best mode is respectfully traversed. Applicants submit that the operation of the control means is functionally fully described by steps (i), (ii), and (iii) of claim 2, and would be understood by one of ordinary skill in the art. Note that the steps of claim 2 have now been incorporated into the specification. All that is required is that (i) gas be supplied at a sufficient velocity, that (ii) the supply of gas be reduced, and that these steps be done repeatedly. A skilled person would recognize a myriad of conventional ways in which this could be achieved, for example, by the use of a pressurized gas cylinder and a controllable valve. It is specifically stated in the specification, at page 5, lines 10-11, that the gas pressure may be regulated by a particular brand of pressure regulator supplied by Redwood Microsystems, Inc. of California. In addition, at page 9, lines 12-17, reference is made to as a "Y" valve that may switch the gas stream on and off, this valve being mounted between a pressure regulating valve and the chip. A specific Microrobotics relay card and a specific Microrobotics controller are also mentioned as exemplary embodiments by which the injection time and number of injections may be digitally regulated.

Accordingly, it is submitted that the control means is adequately supported in the specification and that no concealment of a best mode has occurred. It is therefore requested the Examiner's rejection of claims 2-12 under §112, first paragraph, be withdrawn.

Claim 3 has been amended to attend to the §112, first paragraph, rejections. There being no prior art rejections of claim 3, it is submitted that claim 3, and claims 4 and 15-18 dependent therefrom, are now in condition for allowance.

Claim 10 has been amended to attend to the §112, first and second paragraph rejections and to recite control means, as suggested by the Examiner, for purposes of overcoming a Restriction Requirement. There being no prior art rejections of claim 10, it is submitted that claim 10, and claims 11-12 dependent therefrom, are now in condition for allowance.

Claim 1 was rejected as being anticipated by Karp, et al. Karp discloses microfluidic devices in which chemical reactions may take place. The devices may include multiple process regions which are filled with filling materials, such as reagents or catalysts, which can be in the form of a powder. The filling materials can be used to perform chemical or biological reactions. The filling may be placed in the microstructure during manufacture. There is no suggestion in Karp of a powder injection microchip which includes a powder reservoir and a powder inlet in fluid connection with a channel which receives an open first end of the powder reservoir, the powder reservoir having an opening at or near to a second end of the powder reservoir to allow egress of gas from the powder reservoir at a point distal to the open first end of the powder reservoir.

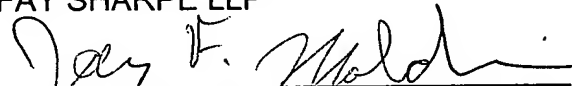
Accordingly, it is submitted that claim 1, and claims 2, 5, 8, and 14 dependent therefrom, distinguish patentably and unobviously over the references of record.

CONCLUSION

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (Claims 1-8, 10-12, and 14-18) are now in condition for allowance.

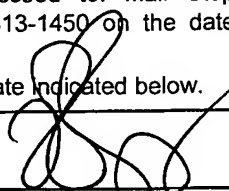
Respectfully submitted,

FAY SHARPE LLP


Jay F. Moldovanyi, Reg. No. 29,678
1100 Superior Avenue, 7th Floor
Cleveland, OH 44114-2579
216-861-5582

March 23, 2007

Date

CERTIFICATE OF MAILING OR TRANSMISSION	
<p>I hereby certify this correspondence (and any item referred to herein as attached or enclosed) is (are) being</p> <p><input checked="checked" type="checkbox"/> deposited with the United States Postal Service as First Class Mail, addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.</p> <p><input type="checkbox"/> transmitted to the USPTO by facsimile in accordance with 37 CFR 1.18 on the date indicated below.</p>	
<p>Date: March 23, 2007</p>	<p>Name/Signature: Theresa L. Lucas </p>

N:\KSTR\200005\TLL0001219V001.docx